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## MAGNET CONTROL SYSTEM FOR BATTERY POWERED LIVING TISSUE STIMULATORS

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### Abstract

A programming system for controlling and/or altering an implantable device's operation using externally applied magnetic means, e.g., a permanent magnet or the like. Typically, such devices stimulate a neural pathway or muscle and/or block pain or muscle stimulation according to programmable settings, e.g., the amplitude, duration, frequency/repetition rates, etc., of stimulation pulses applied to the neural pathways/muscles. Preferably, once programmed from an external programmer, such implantable devices can operate "independently" using the externally provided programmed information. However, external programmers may be unavailable due to cost, size, or other constraints. Accordingly, embodiments of the present invention include a magnetic sensor, preferably a magnetoresistive, Hall effect, saturated core reactors, or the like, to sense an externally provided magnetic field. By externally applying magnetic fields in sequences of controlled polarities, durations, intensities, etc., and sensing these sequences and transitions, the operation of the implantable device may be altered, i.e., programmed.